

# Work Order ID 79290

**\*79290\***

*TESTING*

Page 1

Item ID: D3676-1

Accept

**\*N900040100\***

Setup Start

**\*NS1\***

Revision ID:

Stop

**\*NS2\***

Item Name: Bubble Window

Start Date: 24/01/2012 Start Qty: 1.00

**\*1\***

Cust Item ID:

Required Date: 07/02/2012 Req'd Qty: 1.00

**\*1\***

Customer:

Reference:

Approvals: Process Plan: *M-LJ*

Date: *12/01/24*

Tooling:

Date:

Run Start

**\*NR1\***

QC:

Date:

SPC (Y/N):

Date:

Stop

**\*NR2\***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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Draw Nbr	Revision Nbr
D3676	Rev B

100		0.00							
<b>*100*</b>	HAND FINISHING THERMOFORMING								
Thermoform	Memo	0.00				<i>x1</i>			<i>Wh</i>
Thermoforming Machine	Set up Machine as per folio FTA 018 and D3676 program					<i>x1</i>			<i>12/01/24</i>

110		0.00							
<b>*110*</b>	HAND FINISHING THERMOFORMING								
Thermoform	Memo	0.00				<i>x1</i>			<i>Wh</i>
Thermoforming Machine	Cut Blanks to 33.5" by 50"					<i>x1</i>			<i>12/01/24</i>

120		0.00							
<b>*120*</b>	THERMOFORMING MACHINE								
Thermoform	Memo	0.00				<i>x1</i>			<i>Wh</i>
Thermoforming Machine	Thermoform as per Dwg. D3676 and Folio FTA 018Dwg. Rev. <i>B</i> Folio Rev. <i>C</i>					<i>x1</i>			<i>12/01/25</i>

*PTO*

W/O: 79290		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: D3676-1 PAR #: \_\_\_\_\_ Fault Category: Thermal NCR: Yes No DQA: Star Date: 12/2/2  
 Resolution: Scrap Disposition: Scrap QA: N/C Closed: CK Date: 12/2/2

NCR: 12-1161		WORK ORDER NON-CONFORMANCE (NCR) # 949.15						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			
12/01/25	120	Part pulled from clamps. and tore. RC operator error	<u>S</u> 12/01/30 057042	ADJUST CLAMP POSITION. SCRAP & Replace 1 part.	<u>OK</u> 12/01/25	<u>S</u> 12/01/30 057042	<u>S</u> 12/01/30 057042	<u>S</u> 12/01/30
				M 119347				

NOTE: Date & initial all entries

# Work Order ID 79290

**\*79290\***

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January-24-12 1:53:05 PM

Item ID: D3676-1 Accept **\*N900040100\*** Setup Start **\*NS1\***  
 Revision ID: Stop **\*NS2\***  
 Item Name: Bubble Window  
 Start Date: 24/01/2012 Start Qty: 1.00 **\*1\*** Cust Item ID:  
 Required Date: 07/02/2012 Req'd Qty: 1.00 **\*1\*** Customer:  
 Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_ Run Start **\*NR1\***  
 QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_ Stop **\*NR2\***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
130	QC2- Inspect parts off machine FAI/FAIB	0.00							
<b>*130*</b>									
QC	Memo	0.00				x/			6/1
Quality Control	1) Check Surface finish for undesired marks, voids, dimples etc.2) Check depth of bubble to ensure conformity to drawing tolerances.								12/01/25
140	QC8- Inspect parts - second check	0.00							
<b>*140*</b>									
QC	Memo	0.00				①	②		12/01/25
Quality Control									
150	HAND FINISHING THERMOFORMING	0.00							
<b>*150*</b>									
Thermoform	Memo	0.00				x/			12/01/26
Thermoforming Machine	1) Trim off excess flange material2) Buff out any light scratches or blemishes3) Etch part number and batch number								

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

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<b>Item ID:</b>	D3676-1	<b>Accept</b>	<b>*N900040100*</b>	<b>Setup</b>	<b>Start</b>	<b>*NS1*</b>
<b>Revision ID:</b>						
<b>Item Name:</b>	Bubble Window				<b>Stop</b>	<b>*NS2*</b>
<b>Start Date:</b>	24/01/2012	<b>Start Qty:</b> 1.00	<b>*1*</b>	<b>Cust Item ID:</b>		
<b>Required Date:</b>	07/02/2012	<b>Req'd Qty:</b> 1.00	<b>*1*</b>	<b>Customer:</b>		
<b>Reference:</b>						

**Approvals:**      **Process Plan:** \_\_\_\_\_ **Date:** \_\_\_\_\_ **Tooling:** \_\_\_\_\_ **Date:** \_\_\_\_\_      **Run**      **Start**      **\*NR1\***  
                  **QC:** \_\_\_\_\_ **Date:** \_\_\_\_\_ **SPC (Y/N):** \_\_\_\_\_ **Date:** \_\_\_\_\_      **Stop**      **\*NR2\***

[illegible]

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

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**\*N900040100\***

Setup Start **\*NS1\***

Stop \*NS2\*

**Start Date:** 24/01/2012    **Start Qty:** 1.00    **\*1\***

**Cust Item ID:**

**Required Date:** 07/02/2012      **Req'd Qty:** 1.00      **\* 1 \***

**Customer:**

**Reference:**

**Approvals:**      **Process Plan:** \_\_\_\_\_ **Date:** \_\_\_\_\_ **Tooling:** \_\_\_\_\_ **Date:** \_\_\_\_\_

Run Start \*NR1\*

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop \*NR2\*

**Insp.  
Stamp**

QC21- Final Inspection - Work Order Release

0.00

\*190\*

QC

## Memo

0.00

## Quality Control

WME  
12-01-31

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries



# Picklist Print

January-24-12 1:53:09 PM

Page 1

Work Order ID: 79290

\*79290\*

Parent Item: D3676-1

\*D3676-1\*

Parent Item Name: Bubble Window

Start Date: 24/01/2012

Required Date: 07/02/2012

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP Rev A New Product 01/24/2008 DL Verified:JLM  
IPP Rev B Change Mat. to .236"" 08/29/2008 DL

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
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MACRLICS.236

Purchased

No

sf

307.0000

13.00650

\*MACRLICS 236\*

\*\*

Plexiglass G .236"

Location

Loc Qty

Loc Code

therm

307

307

119347

26.013 sg H.

DL  
12/01/25

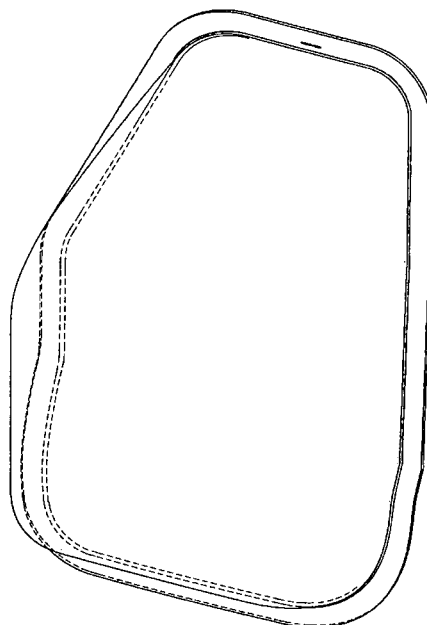
W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries



**D3676-1 412 BUBBLE WINDOW**

79290

**RELEASED**  
09/04/01

**NOTES:**

- 1) MATERIAL: PLEXIGLAS G CLEAR CAST ACRYLIC SHEET PER LP-391 TYPE 1 GRADE C OR POLYCAST II CLEAR ACRYLIC SHEET PER MIL-P-5425, 0.236 THICK (STOCK REF. DART SPEC. M-ACRYLIC-S.236)
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.010 TO 0.020 MAX
- 6) IDENTIFICATION: ENGRAVE P/N "D3676-1" & B/N "BXXXXX" ON FLANGE WITHIN 0.25" OF BUBBLE. USE 0.125" LETTERS TO MAX. DEPTH OF 0.005"
- 7) WEIGHT: 11.0 lbs
- 8) VACUUM FORM PER FOLIO FTA018 USING DT8992 MOLD AND DART QSI 022

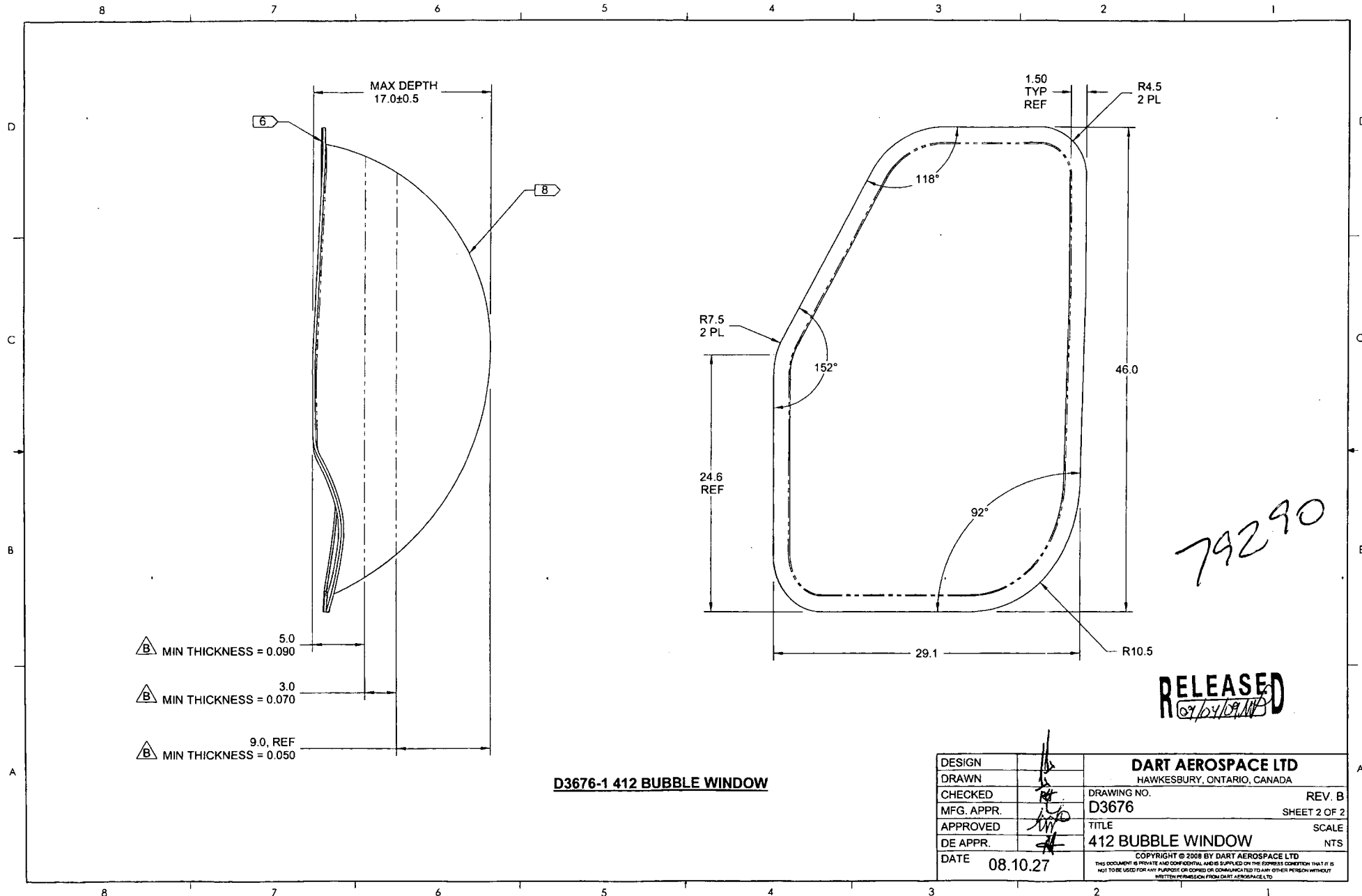
B	REVISED TOLERANCE ON MINIMUM THICKNESSES (ZN A8/B8-2). REASON: PRODUCTION FACILITY.	MB	08.10.27
A	NEW ISSUE	MB	08.02.29
REV.	DESCRIPTION	BY	DATE
DESIGN			
DRAWN			
CHECKED			
MFG. APPR.			
APPROVED			
DE APPR.			
DATE	08.10.27		

**DART AEROSPACE LTD**  
HAWKESBURY, ONTARIO, CANADA

DRAWING NO. **D3676** REV. B  
SHEET 1 OF 2

TITLE **412 BUBBLE WINDOW** SCALE NTS

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**D3676-1 412 BUBBLE WINDOW**

DESIGN		<b>DART AEROSPACE LTD</b>	
DRAWN		HAWKESBURY, ONTARIO, CANADA	
CHECKED		DRAWING NO. <b>D3676</b>	REV. B
MFG. APPR.			SHEET 2 OF 2
APPROVED		TITLE	SCALE
DE APPR.		<b>412 BUBBLE WINDOW</b>	NTS
DATE	08.10.27	COPYRIGHT © 2008 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

<b>DART AEROSPACE LTD</b>	<b>Work Order:</b> 78290.
<b>Description:</b>	<b>Part Number:</b> D3676-1
<b>Inspection Dwg:</b> D3676 <b>Rev:</b> B	<b>Page 1 of 1</b>

**FIRST ARTICLE INSPECTION CHECKLIST**  
**THERMOFORMING SECTION**

Description	Accept	Reject	Method of Inspection	Comments
Inside Radii less than <u>N/A</u> "				
Shape Definition	✓			
Texture Retention	✓			
Material imperfections such as bumps, cracks, voids, scratching	✓			

<b>Measured by:</b> <u>DL</u>	<b>Date:</b> 12/01/25
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**TRIMMING SECTION**

Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
0.090"	MIN	0.109"	✓		ULTRA	
0.070"	MIN	0.100"	✓		ULTRA	
0.050"	MIN	0.071"	✓		ULTRA	
29.1"	Ref.	29.1"	✓		TAPE DL-01	
46"	Ref.	45.9"	✓		TAPE DL-01	
17.0"	± 0.50	16.75"	✓		TAPE DL-01	

<b>Measured by:</b> <u>DL</u>	<b>Date:</b> 12/01/27
<b>Audited by:</b> <u>S</u>	<b>Date:</b> 12/01/30
<b>Preliminary Approval:</b>	<b>Date:</b>

Rev	Date	Change	Revised by	Approved
B	10.04.14	Added preliminary approval	KJ	

*10-04-14*